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ABSTRACT

The impact of multiple aspects of college education on measures of earnings, life satisfaction, job satisfaction, and liberalism-conservatism was studied. The college variables examined were college type, field of major, and academic performance. Attention was also directed to the role of income attainment in shaping attitudes, and underlying developmental processes that might link higher education and individual background to each life domain. The following background variables were assessed: parents' education and income, population of home town, and high school grades. Data were obtained from 9,039 respondents who participated in the 1977 followup of the 1970 Cooperative Institutional Research Program. College and individual variables were found to affect earnings attainment and liberalism-conservatism, but did not affect later job and life satisfaction. Being male and majoring in business or engineering were characteristics linked to higher earnings, while being black and coming from a larger city were important determinants of liberalism. In general, better grades were associated with higher income, greater liberalism, and more life and job satisfaction. (SW)

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# A Comparative Study of College Impacts on Human Outcomes

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ABSTRACT

A multidimensional view of the impact of higher education is presented. Data from a follow-up of students who had earlier participated in the Freshmen Norms Survey of the Cooperative Institutional Research Program (CIRP) indicate the distinctiveness of four life domains. College impacts are found on earnings attainment and liberalism-conservatism, but not on later job and life satisfaction.

INTRODUCTION

Can education uplift a person from rags to riches or does it serve only as a conduit benefiting disproportionately those whose life potentials are high and leaving behind those with fewer prior advantages? This question has been struggled with for years in the literature on social mobility. While the previous work is valuable, we suggest is could benefit from a broader perspective.

First, the frequent focus of research on economic and status outcomes is too narrowly based. More recognition should be given to other life domains and to the relationships between them. Does high income make a job fulfilling? Do greater earnings make employees less liberal? Do conservatives get ahead in life? Does a good job mean a satisfying life? Does money buy happiness?

Second, education is too often considered only in terms of attainment. This is equivalent to viewing education as an uncomplicated and uniform process the impact of which is determined solely by the number of years a person is subjected to it. Such a one-dimensional view of education is particularly inappropriate as far as college is concerned because of the large variations in experience that different students are likely to encounter.

In this study, after a consideration of the possible role of income attainment in shaping attitudes within other life domains, we will examine the impact of multiple aspects of college education (college type, field of major, and academic performance) on measures of earnings, life satisfaction, job satisfaction and liberalism-conservatism, and attempt to determine if distinct underlying developmental processes might link higher education and background to each life domain.

REVIEW

Previous work has generally focused on outcomes within separate life domains. Studies comparing higher educational influences across different aspects of life remain relatively rare. However, overlapping research interests between life domains are apparent. Prior investigations, when considered in aggregate, provide some useful indications of the possible findings of a more comprehensive study. Relevant

findings are outlined below:

Income - While serious questions have been raised concerning whether education has any positive impact on social stratification (Bowles and Gintis, 1976; Jencks, 1972), relationships have often been found between income and various aspects of the college experience. College type or quality has been shown to have an impact on earnings independent of the backgrounds and abilities of students (Alwin, 1976; Foster and Rodgers, 1979; Solmon and Wachtel, 1975; Weisbrod and Karpoff, 1968). Academic performance is generally found to be positively related to income (Astin, 1977; Weisbrod and Karpoff, 1968), but not always (Hoyt, 1966, cited in Astin, 1977). There are marked differences in earnings according to college major, with particularly large rewards accruing to business and engineering majors (Griffin and Alexander, 1978).

In view of the large inequality in returns to education between men and women which is found throughout the world (Woodhall, 1975), it is not surprising that the effect of gender on the choice of academic major has been studied as a possible mediating factor (Angle and Wissmann, 1981; Hearn and Olzak, 1981), but at best it has been found to be only a partial explanation.

Job and Life Satisfaction - While life satisfaction has been relatively understudied, job satisfaction has been a central focus of industrial psychology. However, most work on job satisfaction has been concerned with aspects of the job or of the worker's personality which might affect satisfaction. Studies relating satisfaction to earlier college experiences are rare, although the student's academic major has been found to affect later job satisfaction either directly, or through the major's relatedness to the occupation (Hearn, 1980; Riley, 1982; Solmon, 1981).

Generally, research concerning the educational impacts on job and life satisfaction has been limited to the impact of educational attainment, and while a relationship is usually found, it often does not remain very large after controlling for other variables (Benton, 1975; Bowen, 1977; Gurin et al., 1960; Withey, 1971). Gender differences are rarely found in reported levels of life and job satisfaction, which is curious, particularly with regard to the latter variable, given the large gap in income between men and women (Solmon, 1981).

Liberalism-Conservatism - The development of political attitudes, particularly as they affect voting behavior, has been a central concern of political science. It is rarely questioned that, in recent times, college education is associated with increased liberalism (Beaton, 1975; Bowen, 1977). Differences in political attitudes are typically found between majors. Engineers are generally the most conservative, while social science or arts and humanities majors are the most liberal (Astin, 1977; Feldman and Newcomb, 1969; Selvin and Hagstrom, 1960). The same trend has been found among faculty (Spaulding and Turner, 1968) although Astin (1977) cautions against accepting a causal interpretation of this association. Students with higher grades (Selvin and Hagstrom, 1960; Spaeth and Greeley, 1970) and in more selective colleges (Spaeth and Greeley, 1970) have also been found to be more liberal.

Overall, it is still not obvious how developmental processes might differ between life domains. While some of the same independent variables have been considered in relation to several outcomes, it is unclear which effects might predominate if the impacts of these variables were statistically controlled and examined for several outcomes simultaneously. What is needed is a systematic exploration employing the same large sample and identical independent variables.

## THEORETICAL PERSPECTIVE

That income dominates feelings in other life domains is a plausible hypothesis. This view suggests that people are motivated towards material ends and that their other feelings are influenced by their success at achieving material comfort. An income dominance model predicts a strong relationship between life domains, with greater income producing higher levels of job and life satisfaction and greater conservatism to protect the system which legitimizes the existing distribution of wealth. This primacy of income, then, would cause a "spurious" positive correlation between life and job satisfaction, and a "spurious" negative one between each of these two variables and liberalism.

Until recent times the primacy of material wealth was difficult to question. A hungry man or woman is unlikely to worry about higher order psychological needs. However, college students in a wealthy society brought up in an era of relative abundance and facing a still healthy

job market, seem likely to place great importance on psychological well-being, once a minimum level of material comfort is guaranteed. We see social development as being in a state of transition, in which higher order psychological needs are beginning to dominate material ones (Easterlin, 1974; Maslow, 1968; Scitovsky, 1977). Thus, in contrast to the expectations of an income dominance model, we expect to find little relationship between life domains. Such a finding is central to our theoretical perspective.

Because we expect each domain to represent a distinct dimension of an individual's existence, we suggest that a different developmental process will characterize each outcome. We do not accept that college education simply serves a "conduit" function devoid of any independent impact. However, we expect the aspect of college which is most influential to vary by outcome. In particular, type of college is likely to be important in determining material outcomes such as income, while the student's academic major is expected to play a role in the shaping of attitudinal variables such as liberalism-conservatism. We expect more purely affective variables such as life satisfaction to be more heavily dependent on background variables. Since job satisfaction is shaped by material and affective components, we expect it to be a function of both college type and background. Finally, in order to assess the contribution of achievement to various outcomes, a measure of academic performance is also included as an independent variable, however we expect potentials on this variable to be well shaped prior to college entrance; therefore achievement is not expected to have a major direct impact on any of the outcomes.

## DATA AND METHODS

Our initial sample consisted of 9,039 respondents from throughout the country who participated in the 1977 followup of the 1970 Cooperative Institutional Research Program's (CIRP) freshman norms survey. The two panel surveys include hundreds of questions involving family background, high school accomplishments, status of neighborhood, college experiences, methods of job search, nature of employment, job satisfaction, and numerous attitudes measured at both points in time. The response rate

for deliverable questionnaires was slightly more than 40%. The data previously have been analyzed by Ochsner and Solmon (1979).

Because our later analyses include the impact of college type, the sample was restricted to those persons who did not transfer schools during their college careers. The sample was further limited to respondents who were employed full time because we were concerned with job satisfaction and income attainment. This procedure produced a final sample of 3,333 former college students from 313 colleges in 46 states.

Scales were developed to measure the dependent variables of interest. While a single self-report item was available, for traditional psychometric reasons we used multiple items for each scale. Items were dichotomized using the method of maximum variance so that measures were relative to those who participated in the study. Thus, for example, a student who was rated to be a conservative would be conservative relative to his or her own college-educated cohort (to the extent that the sample is representative), but might be liberal relative to the society as a whole. The intent was to inquire how a student might become more conservative than other students, not to make a statement about the conservatism of students in general. The scores on the scales were standardized for ease of presentation and interpretation so that the final sample used in this investigation achieved an average score of fifty on each scale. With this technique, when scores are examined in terms of group averages, it is immediately apparent which groups are above and below the mean on each of the measures. The items included in each scale are presented in Table 1.

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Table 1 about here

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All scales achieve acceptable reliabilities in terms of internal consistency (alphas from .72 to .85). The items in the liberalism-conservatism scale cover a large range of opinions usually associated with this attitude. It should be noted that the last item of the life satisfaction scale is a question about the respondent's job satisfaction. While this made a correlation between life satisfaction and job

satisfaction more likely, it was felt that to deny that job satisfaction is a component of life satisfaction would be a distortion of reality. As will be noted later, despite this overlap, life satisfaction and job satisfaction remain distinct variables with unique properties.

Data were analyzed by examining raw mean differences between various subgroups and comparing them with adjusted means calculated from the results of an analysis of covariance which controlled for the effects of other variables in the model. Our emphasis on examining unstandardized measures in preference to standardized or variance explanation measures is consistent with recent recommendations of methodologists (e.g. Dwyer, 1983). Significance levels in such a large sample are useful as a guide to important relationships, but they cannot replace direct examination of unstandardized magnitudes. Furthermore, simple unadjusted means are deliberately included in our presentation of results since they portray an existing state which is sometimes disguised by multivariate analysis. Finally, analysis of covariance was used instead of path analysis because of our emphasis on categorical variables.

## RELATIONSHIPS BETWEEN LIFE DOMAINS

Correlations of measures representing the four life domains are presented in Table 2A. Little relationship is found between income and life satisfaction ($r = .078$) or between income and liberalism-conservatism ($r = -.095$). While there is some association between job satisfaction and income ($r = .28$), it is clear that much more than earnings must influence job satisfaction. The only relationship that is at all substantial, the one between life satisfaction and job satisfaction ($r = .41$), is hardly strong enough to indicate that they are essentially the same variable, especially given the measurement overlap.

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Table 2 about here

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It is possible, of course, that the relatively small correlations found are simply an artifact of faulty scale construction or are unique to the particular sample of young adults studied here. To test these possibilities, roughly the same variables were correlated using the General Social Survey's (Davis et al., 1978) random sample of adult Americans carried out in the same year. Instead of constructing scales, self-reports were used for the attitudinal measures, and because general life satisfaction was not asked, a general happiness item was substituted. This second set of correlations is shown in Table 2B.

The findings of the "replication" are very close to those reported previously. The only important difference is that the relationships between income and job satisfaction ($r = .108$) and between life satisfaction and job satisfaction ($r = .208$) are about 50% lower in the sample that was not restricted to young college educated adults. These differences may well reflect an aspect of maturation, suggesting that for young adults just starting a career, money is more likely to influence their feelings towards their jobs, and satisfaction with life is more dependent on their satisfaction at work. In any case, our major conclusion remains firm: The outcomes studied here are distinct and therefore might be shaped by substantially different processes.

BACKGROUND

While examining the role of background as an element of the developmental process within a life domain, it is essential to determine to what degree it might influence later outcomes by steering individuals towards particular college experiences. Table 3 presents some mean differences in background (parents' education and income, population of home town, and high school grades) for selected college variables and provides some idea of the extent to which life choices and their attendant outcomes might be shaped by prior influences.

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Table 3 about here

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Much larger differences in background are generally found between Black and White respondents than between males and females. White parents in our sample earned almost twice what Black parents earned, and had approximately two more years of education. It is evident that differences in background could play a major role in explaining racial differences on various outcomes. On the other hand, the females in our sample (having on average better educated and richer parents, coming from larger cities, and achieving superior high school grades) have a more favorable background for earnings attainment, so should they be found to be earning less than men, other variables must negate these initial advantages.

As might be expected, the backgrounds of students vary markedly by college type. Students who attended selective private universities had parents who earned more and were better educated, which may partially explain the superior high school grade point averages of those students. Students at selective public universities tended to have more favorable backgrounds too, but not as favorable as those of students who attended selective private universities.

Students at predominantly black four-year colleges had by far the least favorable backgrounds and we may find that outcome differences in students from this type of college are attributable to this fact. There were large race and gender compositional differences between types of colleges as well. It is interesting to note, and this parallels findings from the full CIRP sample, that Blacks were proportionally better represented in private universities than in public ones (where they were numerically more predominant). Ten years later, by 1980, this was no longer the case. Women, on the other hand, were underrepresented at the most selective private universities, and this situation has persisted over time.

Differences in background between majors are also apparent, but not as striking as those between colleges. Arts and humanities majors were found to have the most favorable backgrounds, although students in the physical sciences had the best high school GPA's. Business majors had the least educated parents, and the lowest GPA's. Engineering majors had parents with the lowest incomes and were the only group with mothers

who were more educated than their fathers, although the difference was slight. Blacks were most represented in the arts and humanities and social sciences, and were least likely to major in the physical and biological sciences. Women formed the majority of arts and humanities, social science, and professional (mostly nursing) majors and very rarely majored in engineering (only 3%). The hypothesis that choice of major may be critical to an explanation of the lower earnings of college educated women is clearly plausible.

The association between background and college grades is noteworthy for its strong linearity. Every background variable, except for town size, is related to college GPA in the expected direction. This situation would be particularly important if grades were found to play a major role in influencing later outcomes. The same linear breakdown is evident by race and gender, with Whites and women being more likely to achieve better high school and college grades.

OUTCOMES

Differences in outcomes for the four life domains are presented in Table 4. Raw unadjusted mean scores on the left hand side (4A) are compared with those adjusted by controlling for the influence of all other variables in the model (4B).

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Table 4 about here

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Race - There is little difference in income between the college educated Whites and Blacks in our sample. In fact, the Blacks would earn slightly more than the Whites were it possible to equalize backgrounds. This is consistent with census findings that college educated Blacks are earning more in their early careers than previously had been the case.

Blacks are far more liberal than Whites and less satisfied with their jobs and with life. The gap in job satisfaction narrows considerably, however, once the other variables have been controlled.

Sex - The large gap between male and female earnings persists even after controlling for other variables. The more favorable backgrounds for income attainment enjoyed by women are roughly balanced by choices of major and college type that are less favorable in this respect. While women are slightly more liberal than men, this difference is explained by other variables in the model. Men and women report essentially the same levels of life and job satisfaction, in spite of the large difference in their average incomes.

College Type - Higher levels of income are obtained by those attending private universities. Even those attending non-selective private universities earn almost as much as those attending selective public universities. However, once background has been controlled, students from selective public universities earn more than those from the most selective private universities. Those attending the most selective private universities earn slightly less than those attending the next rung of private universities, possibly a result of a more traditional intellectual orientation at the best universities or an artifact of measuring attainment so early in the career. "Premature" measurement could also account for those from public two-year colleges earning more than those from public four-year colleges. The smallest earnings were reported by those from predominantly Black four-year colleges and private two-year (mostly secretarial) colleges.

The most liberal students were from the most selective colleges and from Black colleges, although the latter finding is a "conduit" effect. Students attending Black colleges are no longer more liberal once the other variables (especially the effect of race) are controlled. The most conservative students come from private two-year colleges before controlling other variables and from religious colleges after controlling. While selective public university students report slightly higher levels of life and job satisfaction, there is essentially no difference between colleges once the adjustments have been made.

Major - The usual finding - that engineering and business majors earn the most money and are the most conservative, while social science and humanities and arts majors earn the least money and are the most liberal - is once again replicated with our sample. While differences

are very slight, it is of interest to note that social science majors report above average life and job satisfaction while humanities and arts majors are below average on both variables. Engineering majors report higher than average job satisfaction and less than average life satisfaction while business majors report the opposite pattern of higher than average life satisfaction and lower than average job satisfaction.

Academic Performance - Better grades are associated with higher income, greater liberalism, and more life and job satisfaction. An interesting exception to this pattern is that those with the very highest grades report below average levels of life satisfaction. Problems associated with high levels of scholastic achievement have been noted elsewhere (see Heath, 1977).

F-tests from an analysis of covariance performed on the four outcome measures are presented in Table 5. This table, which should be examined in conjunction with Table 4B, is useful to make summary comparisons across domains, after all "spurious" effects from other variables in the model have been removed. The variance explained by the independent variables (21% for income, 13% for liberalism-conservatism, and less than 5% for job and life satisfaction) was calculated from the total and explained sums of squares.

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Table 5 about here

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It is evident that while the aspects of higher education considered here have a small but significant impact on income attainment and liberalism-conservatism, they have little impact on either life or job satisfaction. The overall pattern of impacts in the various life domains will be considered in the following section.

## DISCUSSION AND CONCLUSION

This study has focused on three primary concerns. First, we were concerned that education is a more complex and varied process than can be indicated with a simple "years of attainment" measure, particularly when college is considered. Second, we were concerned, given the multifarious

nature of life that too much research has been centered around purely economic and status outcomes. Finally, we have provided data to show that several life outcomes are linked to education and background through distinctive developmental processes. We will now consider each of these concerns in greater detail.

It is obvious that the complexity of social existence necessitates drastic simplifications in models of social processes. However, we suggest that by restricting studies to the most easily measured units such as "dollars" and "years", a large part of the overall picture is missed. Even though accurate understanding of most social processes requires the simultaneous consideration of both categorical and continuous variables, such "mixed" studies are difficult to consider in casual terms using existing quantitative methods. For our part, we took the small but relatively infrequent step of considering three categories of college experience simultaneously (field of major, college type, and academic performance). We have no doubt that other perhaps even more important dimensions of college experience exist and should further be explored in the future.

We chose to limit our study to the life outcomes of income attainment, liberalism-conservatism, job satisfaction, and life satisfaction. While the last variable in this list is to us the most important outcome for members of an affluent society, most of the work of others has concentrated on income. We rejected the income dominance view that suggests income levels shape all other feelings and attitudes. This rejection was somewhat supported by the data. The intercorrelations of the four outcomes were not strong enough to suggest the possibility of an important pattern of causality among them. On the other hand, all of the correlations were in the direction which would be expected if an income dominance model were correct. We therefore conclude that a remnant of this process remains, even among college students in relatively affluent times. Given the current recessionary period, we would expect the correlations among these outcomes to be stronger now than they were in 1977 when our survey was conducted.

"Developmental process" is a theoretical construct which we have

imposed on our empirical findings which in reality only indicate association. We justify this by claiming that our temporally prior college and background variables are logically causal. Since we cannot prove this assertion, our exercise becomes one of indicating what the magnitude of the impacts would be if the relationships were in fact causal.

In general, our findings support the contention that developmental processes differ depending upon the outcome under consideration, although not necessarily in the manner we expected. Being male and majoring in engineering or business are most central to later earnings. Being Black and coming from a larger city are important determinants of liberalism. There is some indication that better high school grades (perhaps as a surrogate measure of ability) play a role in greater job satisfaction. Life satisfaction chances are improved most by being white and having richer parents. Both life satisfaction and job satisfaction are poorly explained by the model and we find neither variable to be significantly influenced by college experience.

College experiences were important both for earnings attainment and for liberalism-conservatism. Earnings were not directly influenced by the educational levels of parents. Instead, parental education exerted an indirect impact by influencing the educational choices and academic performances of students. By contrast, the education of mothers (and only of mothers) had a direct impact on the liberalism of students. A traditional explanation for this implicates the compassionate nature of several items on the liberalism-conservatism scale, views which might tend to be held by educated mothers who socialize them into their offspring.

The inability of our model adequately to predict job satisfaction and life satisfaction was disappointing. It is possible that our scales have confounded measurement and causal structures. If the single most straightforward self-report item on each scale were considered to be the outcome, and the remainder of the items in each scale to be independent variables, about 50% of the variance in each single-item measure would be explained. The appropriate nexus between the immediate causes of satisfaction (e.g., the quality of family life, or the creativeness of the job) and the college experience remains unexplained. Satisfaction

is the result of interplay between existing situations and individual personalities. While college experience might well shape personality, for our purposes a drawback of the CIRP data is the paucity of affective measures adequate for testing such a notion. While a link between college experience and later life and job satisfaction may exist, we are unable to elucidate it with our data.

We recognize, of course, that other forces in addition to those considered here may influence life outcomes. We have not attempted to explain to a full degree how income, liberalism-conservatism, life satisfaction, and job satisfaction are formed. We were concerned specifically with the impacts of higher education and background. Obviously, variables directly concerning occupation, religion, and personal life might have greater explanatory power, but they cannot diminish the importance of the mean differences presented here.

Several incidental findings indicate possible directions for further study. The substantially lower level of life satisfaction reported by Blacks is particularly striking. Also, the inclination of women to report high levels of job satisfaction, in spite of their comparatively low level of earnings remains in need of explanation. Another finding of interest was that engineering majors, on average, come from the poorest families and have slightly better educated mothers than fathers. If this finding can be replicated, it will be tempting to ponder what parental influences might come to bear on these students to choose the major with the greatest potential earnings and most conservative outlook.

Finally, an important paradox emerges when comparing life outcomes. The universities that attract the wealthiest students and provide the most potential for income attainment are the same ones which inculcate the ideas most in favor of social change. We find this contradiction in higher education to be a welcome guarantee of a diverse and changing society.

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Tables

Table 1: Items used for scale construction.*

SCALE: Liberalism-conservatism Alpha=.72

1. Government should develop antiballistic missile capability [-]
2. Government should provide financial aid for the disadvantaged [+]
3. Government should be involved in school desegration [+]
4. Government should eliminate poverty [+]
5. Courts show too much concern for the rights of criminals [-]
6. Divorce laws should be liberalized [+]
7. Marijuana should be legalized [+]
8. College officials have the right to ban persons with extreme views from speaking on campus [-]
9. Student publications should be cleared by college officials [-]
10. How would you characterize your political views? [-]

SCALE: Life Satisfaction Alpha=.76

1. Satisfaction with life in general [+]
2. Satisfaction with family life [+]
3. Satisfaction with quality of leisure time activities [+]
4. Satisfaction with amount of time for leisure activities [+]
5. Satisfaction with town you live in [+]
6. Satisfaction with geographic area you live in [+]
7. Satisfaction with climate where you live [+]
8. Satisfaction with social life [+]
9. Satisfaction with future prospects [+]
10. Satisfaction with current job [+]

SCALE: Job Satisfaction Alpha=.85

1. I am satisfied with my career progress to date [+]
2. My job fits my long range goals [+]
3. I would like to remain with my employer [+]
4. Satisfaction with status of position [+]
5. Satisfaction with variety of activities [+]
6. Satisfaction with challenge [+]
7. Satisfaction with extent of responsibility [+]
8. Satisfaction with opportunity for creativity [+]
9. My skills are fully utilized [+]
10. Are you underemployed [-]

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* Due to characteristics of the survey format, and to avoid redundancy, some of the items have been presented in an approximate form. The original life and job satisfaction questions were asked in separate sections of the survey.

Table 2A - Correlations of four dependent variables using CIRP sample.

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. Income | 1.000 | | | |
| 2. LC | -.095 | 1.000 | | |
| 3. LS | .078 | -.111 | 1.000 | |
| 4. JS | .238 | -.100 | .413 | 1.000 |

LC = Liberalism/Conservatism
LS = Life Satisfaction
JS = Job Satisfaction

All correlations significant at .001 level

Table 2B - Correlations between equivalents of four dependent variables using general social survey [NORC].

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| 1. Income | 1.000 | | | |
| 2. LC | -.095 | 1.000 | | |
| 3. LS | .092 | -.067 | 1.000 | |
| 4. JS | .108 | -.102 | .208 | 1.000 |

Table 3. Background Differences of College Students

| | PAR INC | FAT ED | MOT ED | POP (000) | HS GPA | White % | Black % | Male % | Female % | N |
|---|---|---|---|---|---|---|---|---|---|---|
| White | 15,310*** | 13.3*** | 13.0*** | 281*** | 3.2*** | | | 48.7 | 51.3 | 2892 |
| Black | 8,644 | 11.1 | 11.8 | 419 | 3.0 | | | 35.6 | 64.4 | 441 |
| Male | 13,946** | 12.9** | 12.7* | 278*** | 3.0*** | 90.0 | 10.0 | | | 1566 |
| Female | 14,856 | 13.2 | 12.9 | 318 | 3.3 | 83.9 | 16.1 | | | 1767 |
| Private- most selective | 18,155*** | 14.6*** | 13.9*** | 425*** | 3.4*** | 84.1 | 15.9 | 56.3 | 43.8 | 176 |
| Private- highly selective | 18,433 | 13.7 | 13.5 | 318 | 3.4 | 87.3 | 12.7 | 47.0 | 53.0 | 134 |
| Private- not selective | 14,551 | 13.3 | 12.8 | 345 | 3.0 | 88.9 | 11.1 | 49.8 | 50.2 | 243 |
| Public-selective | 15,911 | 13.6 | 13.2 | 309 | 3.3 | 92.7 | 7.3 | 46.7 | 53.3 | 694 |
| Public- not selective | 15,228 | 13.2 | 13.0 | 210 | 3.1 | 94.5 | 5.5 | 53.8 | 46.2 | 418 |
| 4 year public college | 12,204 | 12.5 | 12.3 | 309 | 3.1 | 90.7 | 9.3 | 42.5 | 57.5 | 624 |
| Religious | 15,240 | 13.3 | 13.0 | 285 | 3.2 | 93.6 | 6.4 | 46.6 | 53.4 | 423 |
| Black- 4 years | 8,256 | 10.8 | 11.5 | 275 | 2.9 | 1.7 | 98.3 | 30.6 | 69.4 | 173 |
| Public- 2 years | 13,281 | 12.5 | 12.4 | 324 | 3.0 | 89.7 | 10.3 | 50.6 | 49.4 | 387 |
| Private- 2 years | 13,939 | 12.5 | 12.6 | 136 | 2.7 | 100.0 | 0.0 | 37.7 | 62.3 | 61 |
| Arts and Humanities | 15,864** | 13.5*** | 13.1*** | 322** | 3.2*** | 85.4 | 14.6 | 35.5 | 64.5 | 595 |
| Social Sciences | 14,323 | 13.0 | 12.7 | 320 | 3.2 | 81.1 | 18.9 | 28.5 | 71.5 | 903 |
| Biological Sciences | 14,650 | 13.5 | 13.1 | 299 | 3.3 | 95.7 | 4.3 | 53.1 | 46.9 | 162 |
| Business | 14,385 | 12.5 | 12.4 | 273 | 2.9 | 87.7 | 12.3 | 68.5 | 31.5 | 505 |
| Engineering | 13,357 | 12.7 | 12.8 | 283 | 3.2 | 90.8 | 9.2 | 96.8 | 3.2 | 250 |
| Physical Sciences | 13,715 | 13.4 | 13.1 | 326 | 3.4 | 94.3 | 5.7 | 56.6 | 43.4 | 369 |
| Professional | 14,474 | 12.9 | 12.7 | 259 | 3.3 | 89.4 | 10.6 | 17.6 | 82.4 | 199 |
| Other | 13,709 | 12.8 | 12.7 | 254 | 3.0 | 86.0 | 14.0 | 51.4 | 48.6 | 350 |
| A,A+ | 15,360*** | 13.7*** | 13.1*** | 288 | 3.7*** | 97.5 | 2.5 | 37.2 | 62.8 | 285 |
| A-,B+ | 14,996 | 13.3 | 13.0 | 316 | 3.4 | 90.6 | 9.4 | 36.0 | 64.0 | 938 |
| B | 14,992 | 13.2 | 12.9 | 295 | 3.2 | 88.4 | 11.6 | 42.9 | 57.1 | 818 |
| B-,C+ | 13,773 | 12.7 | 12.6 | 297 | 2.9 | 82.2 | 17.8 | 54.9 | 45.1 | 863 |
| C or Less | 12,811 | 12.5 | 12.4 | 287 | 2.7 | 77.4 | 22.6 | 69.2 | 30.8 | 429 |

***p=.001 **p=.01 *p=.05

PAR INC= Parent's income FAT ED= Father's education
MOT ED= Mother's education POP= Population of home town
HS GPA= High school grade point average

Table 4. Mean differences on outcome measures for various groups

| | A) Unadjusted means | | | | B) Adjusted for Independents and Covariates | | | |
|---|---|---|---|---|---|---|---|---|
| | INCOME | LC | JS | LS | INCOME | LC | JS | LS |
| White | 11,316 | 47.5*** | 50.9*** | 51.7*** | 11,178*** | 47.6*** | 50.4 | 51.2*** |
| Black | 11,098 | 66.2 | 43.9 | 38.7 | 12,002 | 65.9 | 47.6 | 41.9 |
| Male | 12,462*** | 47.7*** | 49.9 | 49.2 | 12,320*** | 50.5 | 51.0 | 49.3 |
| Female | 10,245 | 52.1 | 50.0 | 50.7 | 10,371 | 49.5 | 49.1 | 50.6 |
| Private- most selective | 11,967*** | 60.8*** | 49.5* | 49.4*** | 11,679*** | 56.4*** | 48.0 | 48.6 |
| Private- high selective | 12,372 | 51.7 | 45.3 | 47.6 | 11,957 | 50.8 | 43.5 | 46.5 |
| Private- not selective | 11,829 | 48.6 | 50.1 | 51.2 | 11,687 | 49.1 | 50.5 | 50.9 |
| Public- selective | 11,893 | 54.7 | 52.6 | 52.3 | 11,765 | 55.2 | 51.4 | 51.3 |
| Public- not selective | 11,173 | 44.7 | 48.8 | 49.1 | 11,035 | 48.1 | 48.4 | 48.2 |
| 4 year public college | 10,778 | 45.7 | 51.5 | 50.5 | 11,002 | 46.5 | 51.7 | 50.6 |
| Religious | 10,714 | 45.8 | 49.1 | 51.0 | 10,924 | 46.1 | 48.6 | 49.8 |
| Black- 4 year | 10,495 | 65.0 | 44.3 | 37.4 | 10,899 | 50.5 | 49.5 | 47.4 |
| Public- 2 year | 11,430 | 48.6 | 50.8 | 51.9 | 11,339 | 49.9 | 52.3 | 52.6 |
| Private- 2 year | 9,160 | 43.7 | 41.8 | 43.5 | 9,573 | 49.2 | 42.5 | 41.9 |
| Arts and Humanities | 10,035*** | 56.4*** | 46.4* | 48.6 | 10,130*** | 55.4*** | 46.4* | 48.0 |
| Social Science | 10,308 | 55.5 | 52.5 | 51.0 | 10,585 | 54.5 | 52.9 | 51.4 |
| Biological Science | 10,929 | 51.3 | 47.4 | 48.5 | 10,749 | 52.5 | 46.2 | 47.0 |
| Business | 12,372 | 43.2 | 48.8 | 52.1 | 12,346 | 44.7 | 50.2 | 53.3 |
| Engineering | 14,672 | 41.0 | 51.7 | 47.6 | 13,770 | 41.2 | 51.3 | 48.5 |
| Physical Sciences | 11,795 | 46.7 | 51.7 | 50.0 | 11,450 | 47.7 | 50.2 | 49.2 |
| Professional | 12,212 | 49.7 | 52.4 | 50.9 | 12,581 | 50.2 | 51.3 | 49.3 |
| Other | 11,060 | 44.2 | 48.3 | 48.6 | 11,104 | 44.4 | 48.2 | 48.7 |
| A,A+ | 11,726*** | 50.1 | 54.6*** | 49.8** | 11,662*** | 51.6 | 52.0* | 47.5 |
| A-,B+ | 11,399 | 51.1 | 52.9 | 52.2 | 11,579 | 51.0 | 52.0 | 51.5 |
| B | 11,412 | 50.1 | 51.7 | 51.2 | 11,539 | 50.0 | 51.6 | 50.9 |
| B-,C+ | 11,165 | 49.0 | 46.4 | 48.8 | 11,071 | 48.6 | 47.4 | 49.6 |
| C or Less | 10,754 | 49.4 | 44.7 | 45.6 | 10,351 | 49.5 | 46.4 | 47.6 |

***p=.001 **p=.01 *p=.05 LC= Liberalism-conservatism JS= Job satisfaction
LS= Life satisfaction

Table 5. F-Tests and sums of squares from analysis of covariance performed on four outcome measures.

| | d.f. | INCOME (000000)[a] | LC (00)[a] | JS (00)[a] | LS (00)[a] |
|---|---|---|---|---|---|
| COVARIATES | 5 | 753.4 (13.3)*** | 743.7 (23.3)*** | 538.6 (9.9)*** | 565.1 (10.3)*** |
| HS GPA | 1 | 238.1 (20.9)*** | 2.6 (.4) | 261.9 (24.0)*** | 45.6 (4.2)* |
| FAT ED | 1 | 56.6 (5.0)* | .7 (.1) | 55.2 (5.1)* | 74.5 (6.8)** |
| MOT ED | 1 | 2.7 (.2) | 51.9 (8.1)** | 1.0 (.1) | 6.0 (.6) |
| PAR INC | 1 | 216.8 (19.1)*** | 5.2 (.8) | 25.1 (2.3) | 187.6 (17.1)*** |
| POP | 1 | 230.3 (20.3)*** | 659.0 (103.4)*** | 99.5 (9.1)** | 16.2 (1.5) |
| MAIN EFFECTS | 22 | 9289.9 (37.1)*** | 2514.2 (17.9)*** | 555.1 (2.3)*** | 651.1 (2.7)*** |
| RACE | 1 | 144.1 (12.7)*** | 697.7 (109.4)*** | 15.6 (1.4) | 185.4 (16.9)*** |
| SEX | 1 | 2351.8 (206.9)*** | 5.7 (.9) | 21.0 (1.9) | 10.6 (1.0) |
| TYPE | 9 | 569.4 (5.6)*** | 382.4 (6.7)*** | 164.3 (1.7) | 122.4 (1.2) |
| MAJOR | 7 | 3276.4 (41.2)*** | 689.0 (15.4)*** | 191.9 (2.5)* | 122.9 (1.6) |
| GRADES | 4 | 443.0 (9.7)*** | 25.4 (1.0) | 139.9 (3.2)* | 66.9 (1.5) |
| EXPLAINED | 27 | 10043.3 (32.7)*** | 3257.9 (18.9)*** | 1093.7 (3.7)*** | 1216.2 (4.1)*** |
| RESIDUAL | 3305 | 37575.9 | 21069.2 | 34900.9 | 36221.9 |
| TOTAL | 3332 | 47619.2 | 24327.1 | 35994.6 | 37438.1 |
| EXP/TOT | | .21 | .13 | .03 | .03 |

***p= .001 **p= .01 *p= .05

a) Sums of Squares have been rounded

Note: Key to labels appears in tables 3 and 4.
F-Test ratios appear in brackets